

Fresh Air Intake Pre - filtering Device for Make -Up Air

Field of the Invention

This invention is in the field of furnace forced air heating air circulation for make - up air.

Background of the Invention

Field of the invention: A supply of make - up and combustion air is required for buildings with forced air heating from furnaces with a combustion chamber that burns fuel of natural gas or oil. Buildings made airtight rely on the make - up air supply to maintain a neutral or positive pressure so products from combustion don't enter the inhabited areas. While the forced air fan is operating it will draw in through the fresh air intakes upward of 180 to 125 cfm or what calculates into 10% of the make - up required for the building's particular furnace circulating system.

Where screens are required on air intakes supplying make - up air, the building code requires that the screens with less than 1/4 inch, it's gross area shall be three times greater than the duct it serves. They shall be removable without any special tools and made of a none corrosive resistant material.

Description of the Related Art: In art, a device has been introduced for supplying make - up air to the forced air furnace circulating system as shown by Kogut, Jimmy A. US Patent 4,509,681, is known to use the same standard screen openings, 1/4 inch, which is not removable for cleaning on the fresh air intakes. Screens of this nature are known to plug up with debris, freeze up with frost and snow, imposing difficulty on the air intakes to supply the make - up air, thereby creating a negative pressure and allowing products of combustion into the inhabited areas, possibly at unsafe levels.

Studies show these air intakes develop a build up over time by allowing insects, mice, pollens, dust mites, allergens, and air borne bacteria to enter the furnace's circulating system, this accumulation and confinement has raised some health concerns.

References Cited

10-1991 Tusbbesing et al, CL.454/365 is a roof vent and is not designed for heating circulation systems.

04-1985 Kogut, CL.126/112 clearly states the screen 58 is a conventional industrial wire screen of the type having wire barbs at each of the screen intersections and a mesh similar to a window screen.

This wire screen is a standard 1/4 in. screen used on all heating make-up air intakes for the past forty years.

Summary of the Invention

The invention is directed to a furnace forced air heating make- up air circulating system for a building, relating more to residential homes.

A pre - filtering device being mounted on an outside wall of a building and connected to the make - up air inlet conduit to the return air duct accomplishes a better quality make - up air.

Further, in accordance with this invention, while the furnace fan is operating the 10% of make - up air required is being drawn through the pre - filtering device stops most pollutants such as dust mites, pollens, allergens, and air-borne bacteria as well as insects, before entering through the wall and into the return air duct.

Further, in accordance with this invention, an aluminum frame with a raised pattern grill allows the frost to build up and dissipate through the filter medium in the winter months.

Further, in accordance with this invention, there are no special tools required for installing, removing for service, or cleaning of the screen.

In the following detailed description and drawings that follow, a more complete understanding of the invention will be obtained.